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ABSTRACT

Intended for forensic educators and debate teams, this document details how one university debate team, at the University of Iowa, makes use of computer resources on campus to facilitate storage and retrieval of information useful to debaters. The introduction notes the problem of storing and retrieving the amount of information required by debate teams using conventional methods, suggests a computer system alternative, and proposes that debaters could benefit from such computer experience. The second section explains the capabilities of the college's previous computer system. The third section details the type of program, a database, the debate team needed to store and retrieve information, while the fourth section describes sample systems, including the Apple IIe and IIc, which were found to have inadequate memory capabilities. The fifth section details the debaters' present system, which utilizes the University of Iowa's mainframe PRIME, and several programs such as MUSE, a wordprocessing program, MIDASPLUS, a database program, and several Basic/VM programs. A sixth section looks at how the system functions, and a conclusion emphasizes the need for debate teams to welcome, rather than shun, computers as a resource for debate teams. (References and diagrams are included.) (JC)

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TECHNNOLOGICAL IMPERATIVES:
USING COMPUTERS IN ACADEMIC DEBATE

By
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ABSTRACT

Computer technology is now a ubiquitous feature of modern life. Nonetheless, many forensic educators still have not made significant progress in adapting this technology to the debate activity. This article holds that greater utilization of computer resources can result in numerous pedagogical and practical benefits to debate programs - both small and large. Toward this end, the article details the authors' experience with using computers in the debate activity and suggests how others might use available computer resources to enhance debaters' computing skills and increase the efficiency of processing debate evidence.

TECHNOLOGICAL IMPERATIVES:
USING COMPUTERS IN ACADEMIC DEBATE

INTRODUCTION

Forensics educators are well aware of the ever increasing information processing demands of the debate activity. One goal of the activity is to teach students to construct arguments backed by sound reasoning and credible evidence. Further, debaters, by responding to the competitive demands of the activity, build voluminous files of notecards ideally consisting of up-to-date and on-point information on specific debate questions. When backfiles on previous questions are taken into consideration, the amount of evidence compiled and kept by debate squads can be positively overwhelming. For example, in 1984-85, our debate team's computer files constituted the second largest database at the university; the first being the University Hospitals which comprise the world's largest teaching hospital. Unfortunately, efficient access and use of evidence are usually tedious and time-consuming processes which, as both Sharpe and Sheckels have alluded to, can place substantial limits on the time available to coaches and debaters for work on higher-level cognitive skills essential to successful performance in the activity (Thomas & Hart, 1987).

We believe that effective computer utilization offers the most promising solution to the problem of efficient processing of debate evidence. More importantly, numerous educational advantages accompany increased use of the computer. Many of

these have been articulated by Scheckels (Thomas & Hart, 1987). For example, debaters learn word-processing skills. They learn to "interact" with the computer terminal; a skill that becomes increasingly important as workplaces become increasingly automated. Moreover, for debaters who have programming skills, the opportunity to apply those skills to ordinary debate tasks provides them with a practicum in automated problem-solving that can be transferred to the workplace. Both debaters who word process and those who program stand to learn much about using computers to organize and utilize information efficiently.

We disagree with Sharpe's observation that "[d]etails about current systems tend to become obsolete as new systems are introduced" (Thomas & Hart, 1987). First, systems can reasonably be expected to last at least five years without significant revision. Second, we maintain that new ideas are built on the foundation of the old; most computer program revisions are comparatively minor improvements that supplement rather than supplant previous programs. Further, our ideas contribute to current notions of computer use in forensics by adding another layer to the foundation upon which others may hopefully build.

OUR TECHNOLOGICAL IMPERATIVE

Susanna Centlivre is credited with the remark "want is the mistress of invention" (Peter, 1977). Our own inventiveness was precipitated by the exigency of losing an existing computerized evidence management system. This system was originated by James Herbeck at the request of his brother Dale, who coached debate at the university through 1985. It allowed multiple users to enter

text on 3x5 notecards which were emulated on the computer monitor screen. Cards were sequentially numbered and differentiated by users' initials (e.g., ABC0001, XYZ0002, etc.). The system also compiled and stored entries, retrieved and reprinted them on briefs, thus eliminating redundant manual transcription of information. Debaters simply outlined their arguments on briefs, found supporting notecards in their files, and entered the numbers of the individual notecards in their outlines (Figures 1A & 1B illustrate this procedure in our system). The system located the desired cards and reprinted them on the brief. Unfortunately, the existence of the system depended on the programmer's expertise. With his departure, our computing capabilities became compromised. Having become accustomed to the convenience of his system, we did not wish to return to the manual system of cutting evidence and pasting it to notecards. Therefore, we decided to develop a replacement system. The system we devised is comparable in quality to the system we lost and depends on the availability of relatively sophisticated computer facilities. However, we have made efforts to address the needs of programs which may lack the hardware that is available to us.

GENERAL DESCRIPTION OF A COMPUTER SYSTEM FOR DEBATE

In order to build a computer system, one must first determine exactly what one wants the computer to do. We decided that we wanted the computer to (1) store evidence in the form of notecards, and (2) recall any particular piece of evidence once it has been stored. The first capability allows debaters to

build a master file of evidence in the computer which can be shared by the whole team by simply printing out multiple sets of evidence. The second capability greatly increases the speed of integrating the evidence into briefs.

The first task in building our system was to determine how to store evidence into the computer. To do this, we decided to use a database program. A database program takes information such as mailing lists already formatted into categories such as names, telephone numbers, and addresses, and stores the categories. For debate evidence, the database program can be used to format evidence into the categories of header, source information, text, and card identification, and then store this in a database file.

The second task in building a computer system is to develop a means of integrating text with the evidence stored in the database file. The simplest way that we have found is to type the text of the briefs into a word processing program and to copy the evidence from the database file into the word processing program as needed.

SAMPLE SYSTEMS

Obviously, the sophistication of any system depends on the sophistication of the hardware, software, and programming talents available to the user. But, this equation should not deter debate teams with comparatively limited computer resources from developing their own systems. In fact, we have observed several debate teams with computing capabilities who were not maximizing those capabilities. On the simplest level, a personal computer

can be used to build a computer system for debate. For example, many high schools and colleges have Apple IIe and IIc computers or comparable systems. The Appleworks software package, which contains both a database program and a word processing program, is especially amenable to this application. Its database program can be used to enter and store evidence into the computer. Its word processing program can be used to type the text of debate briefs and, in conjunction with the database program, can integrate stored evidence with the briefs via the "clipboard" function. The clipboard is a temporary storage area which can mediate the transfer of evidence to briefs. From the database file, the desired evidence is copied into the clipboard. After exiting the database program and re-entering the word processing program which contains the text of the brief, the evidence can be copied from the clipboard to the desired location in the brief, thereby completing the integration cycle.

The process of entering evidence and integrating evidence in briefs is much faster with the personal computer than with manual techniques. However, for our purposes, an even faster system with expanded memory is needed. One reason is that personal computer systems lack the memory to efficiently store amounts of evidence ranging from 10,000 to 30,000 notecards or more. However, some debate teams will not need to generate this much evidence, and the Apple IIe and IIc computers can easily handle 1,000 to 2,000 notecards (which would fill 10 to 20 floppy diskettes). Another reason that personal computers are not suitable for our purposes is that the time required for

integration of evidence to briefs can become excessive. With personal computers, the time required to integrate one piece of evidence into a brief is approximately one minute. With our system, this process takes a fraction of a second. So, if many pieces of evidence need to be integrated, a more sophisticated system is necessary.

DESCRIPTION OF OUR SYSTEM

To solve these problems, we have created a much more powerful system that resides on our university's PRIME mainframe computer. The PRIME system has very large memory capabilities and can handle more than 30,000 pieces of evidence easily. To speed up the process of data entry and data processing, we implemented two changes from the procedure described for Appleworks. First, we decided to initially enter the text of evidence into a word processing program before entering it into a database file. The advantage of this approach is increased text editing capabilities. Consequently, this increases the speed of entering data in the computer. Second, we wrote a BASIC program which inserted evidence into the text of a file of briefs. This process greatly decreases the time needed to copy evidence from the database file to briefs.

Our system utilizes the MUSE word processing program, the MIDASPLUS database program, and several BASIC/VM programs which link MUSE and MIDASPLUS, and provide the final formatted notecards and briefs. The text is initially entered into the computer by MUSE. MUSE is a powerful program that allows users to enter and edit text very efficiently. The linkage process

occurs when text entered into MUSE is separated into database categories by a BASIC program, and stored, in conjunction with MIDASPLUS, in a permanent database file. MIDASPLUS is a versatile database program which can be accessed by BASIC/VM BASIC. BASIC is a computer programming language that allows users to perform calculations or manipulate text (for example, one could use BASIC to create a word processing program). BASIC/VM is simply the version of BASIC available on the particular PRIME system we use. From the permanent database file, the evidence can be printed on to notecards or integrated into briefs. Both processes are performed with BASIC programs.

The main advantage of this system is increased productivity in information processing. It has managed to process large amounts of information while conserving the amount of time and money necessary for this processing.

FUNCTIONS OF THE SYSTEM

Data Input

The basic layout of our system is given in Figure 2. It begins with debaters searching for and locating text which needs to be transcribed to notecards. This text is then typed into the computer with MUSE (see Figure 3). The only restrictions required for data entry are that the first line must contain the header, the next three lines the source information, and the last line the identification code of the typist.

MUSE has three major features which are necessary for debate application. First, it has a "word-wrap" feature. This means that once a typist reaches the right-hand margin of a line, the

next word automatically moves to the next line. This eliminates the necessity of using the return key at the end of each line and consequently reduces the time required to enter text into the computer since the typists do not need to shift their eye gaze from the text to the screen. Second, MUSE has a copy function that allows typists to copy blocks of text that have already been typed in, to any location. For example, if typists have source citations which need to be typed frequently throughout the text, the copy function allows them to type this term with only a few keystrokes after the first occurence of the cite. Finally, the word processing program is able to save the text in the computer as a textfile which contains actual text of the data in script rather than computer code. The advantage of a textfile is that it can be used by a common computer language like BASIC to transfer data between various segments of our system easily.

Data Storage

After the text is entered into the computer by MUSE and stored in a textfile called CARDTEXT, a BASIC program called CARDER is used to (1) separate the data in the textfile into categories and, in conjunction with the database program, (2) store the formatted data into a database file called MIDASFILE [NOTE: All programs mentioned other than APPLEWORKS, BASIC/VM, MIDASPLUS, and MUSE are special applications and are not available commercially].

CARDER inputs all the data previously entered into CARDTEXT and categorizes the data. For example, the data in CARDTEXT is composed of quotations, sources of quotations, classifications

(headings) for each quotation, and a letter signifying the identity of the typist of each quotation (see Figure 3). CARDER reads the data, separates the data into the four categories mentioned above, and gives each set of data a unique identifying number. Then, CARDER interacts with the database program (MIDASPLUS) to form the database file called MIDASFILE which is the permanent file used to print notecards and integrate cards with briefs. This interaction consists of one BASIC command in which the formatted evidence is written into MIDASFILE.

MIDASPLUS has three features which make it useful in our system. First, it inputs data directly from a BASIC program (CARDER); some database programs cannot perform this function. Second, it allows stored data to be sent to a BASIC program. MIDASPLUS does this by sending data stored in MIDASFILE to the CARDPRINTER and BRIEFER programs. These two features allow MIDASPLUS to communicate with BASIC programs during both the input and output of information. The third feature is MIDASPLUS's extensive memory capability. It can accept records of up to 1024 characters, which allows each notecard to be stored as a separate record. It also has the capacity to store over 500,000 records/notecards, which is more than enough to satisfy most debate teams' requirements even assuming backfile storage.

Data Output: Notecards

Once evidence has been entered and stored in the computer, there remains the problem of getting from the computer to notecard format. Our system solves this problem with the CARDPRINTER program. CARDPRINTER inputs the evidence stored in

the database file and formats it so that it can be printed on 3x5 notecards. After CARDPRINTER inputs the evidence in the form of categories, it further formats this data by placing blank lines between the categories, indenting the text, and placing a form-feed character at the end of each piece of evidence (see Figure 4). A form-feed character is simply a symbol such as the number "1" placed in the first column of the output notecard in order to distinguish each piece of evidence as a separate notecard. This allows the printer to type each piece of evidence as a separate notecard. Finally, this program stores the final formatted text in the CARDSPROCESSED textfile which can be routed directly to the printer.

Data Output: Briefs

Like APPLEWORKS, debaters initiate brief-building in our system by entering the text of the brief (without evidence) into a word processing program (MUSE). Where evidence is required, debaters simply type three ampersands followed by a notecard's identification number. In addition, debaters must type three asterisks and one-letter identification code to end each brief (see Figure 1A). Once the briefing session is completed, the briefs are stored in a textfile called BRIEFTEXT. Then, the BASIC program called BRIEFER inputs the textfile data, searches for each occurence of three ampersands, and converts the identification numbers following the ampersands to actual texts of notecards (see Figures 1A and 1B). Finally, a form-feed character is placed at the end of each brief and the briefs are then filed in the BRIEFSPROCESSED textfile. The briefs in

BRIEFSPROCESSED can then be routed directly to the printer, completing the conversion of notecards to finished briefs.

CONCLUSION

Many computer applications are available for the creative debate team. We have suggested only one. We share Thomas' and Hart's visions of a debate community radically transformed by the computer revolution (1987). Unfortunately, few forensic coaches have experimented with computer uses and communicated their experiences to colleagues. We are aware of many uses such as tournament tabulations, but these uses are generally limited to a few schools and have not become commonplace. Worse, some computer uses have been discouraged. For example, in 1983, the National Forensic League Executive Council decided to "bar any electrical retrieval information system for use in any NFL contest" (Rostrum, 1983). This ruling has been interpreted to preclude the use of microcomputers and printers that are carried into debate rounds.

We cannot continue to ignore or circumvent the technological imperatives of the computer revolution. Our aversion to advances in technology will neither curb the onslaught of computers nor acclimate our students to the expanding technological environment. The computer will eventually affect forensics as much as it does the rest of society. Rather than shelter ourselves and our students from the computer, we should imaginatively pursue ways to use it beneficially. We concur with Thomas and Hart (1987) in expressing our hope that the ideas presented in this paper "will stimulate debaters and forensics

educators to consider how they can take advantage of the Information Age today."

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Midasplus. Computer software. Prime Computer, 1982.

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Thomas, D. A., & Hart, J. (Eds.). (1987). Advanced debate (3rd ed.). Lincolnwood, IL: National Textbook Company.

Figure 1A. Example of a brief created by MUSE, stored in BRIEFTEXT

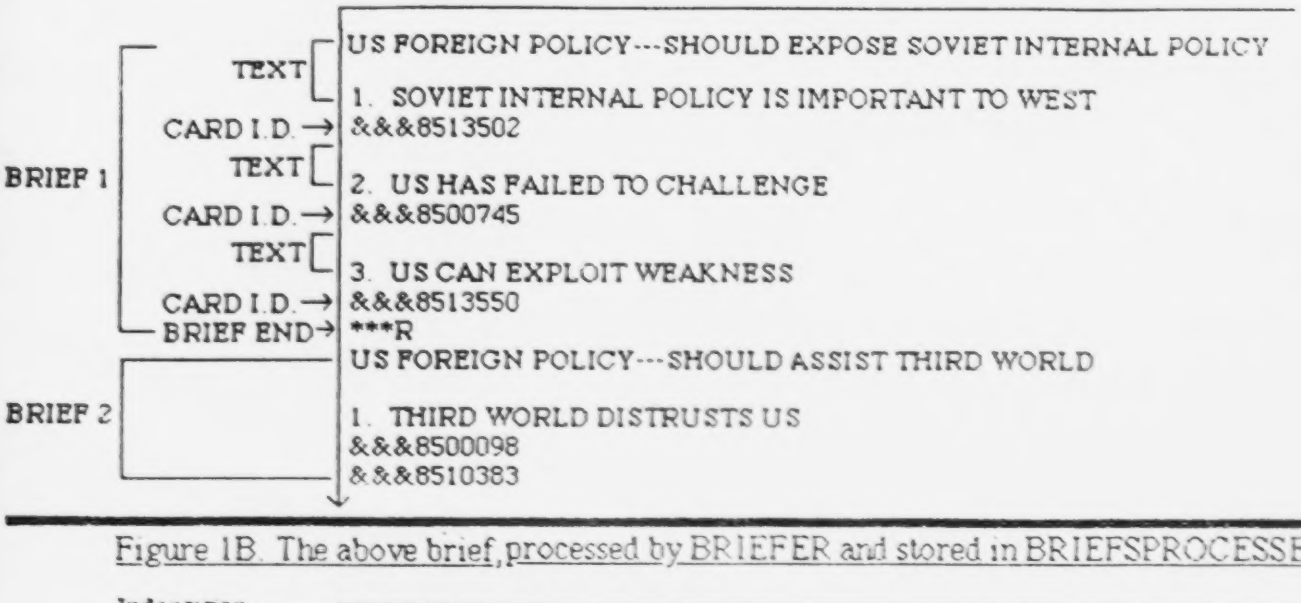


Figure 1B. The above brief, processed by BRIEFER and stored in BRIEFSPROCESSED

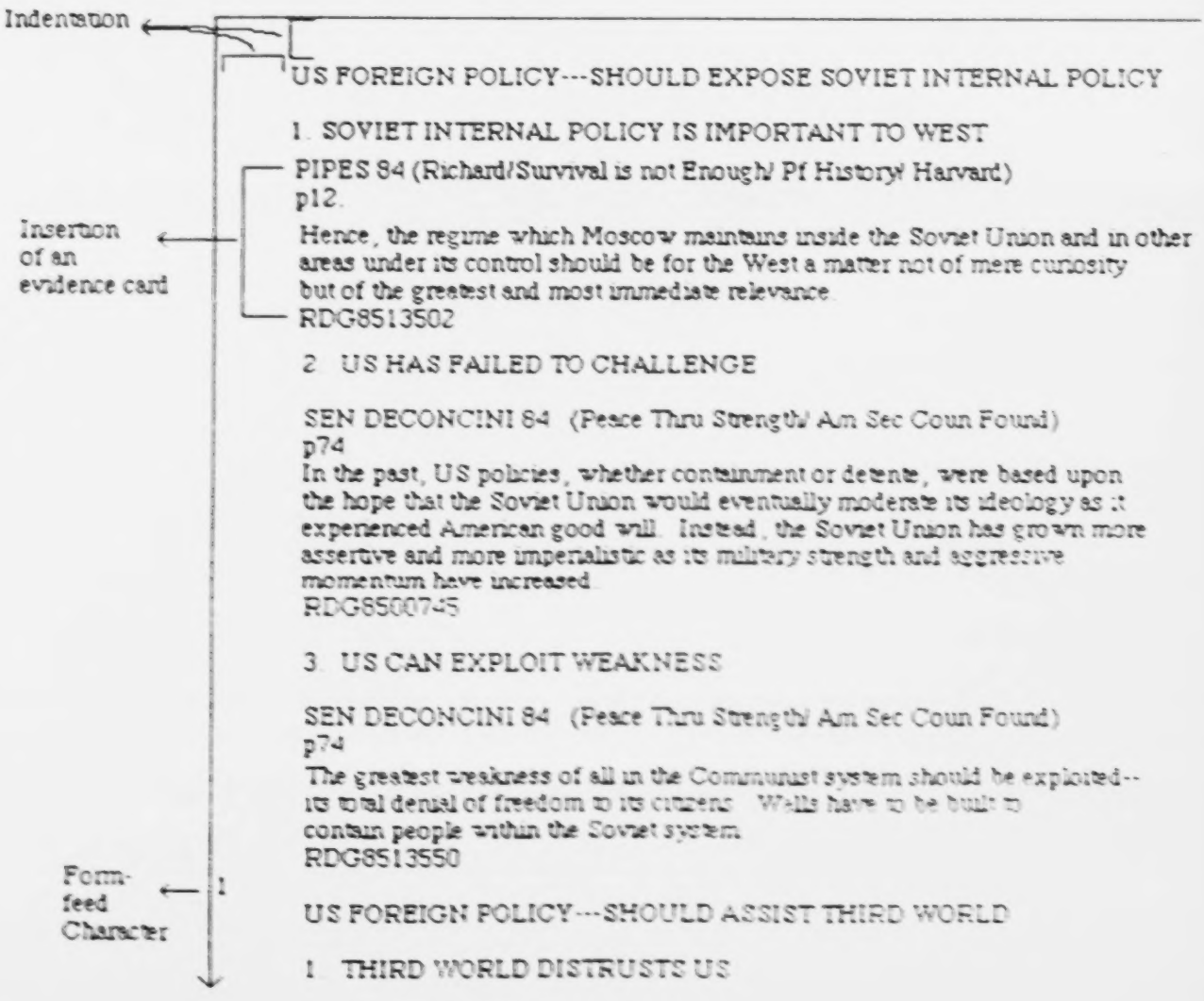
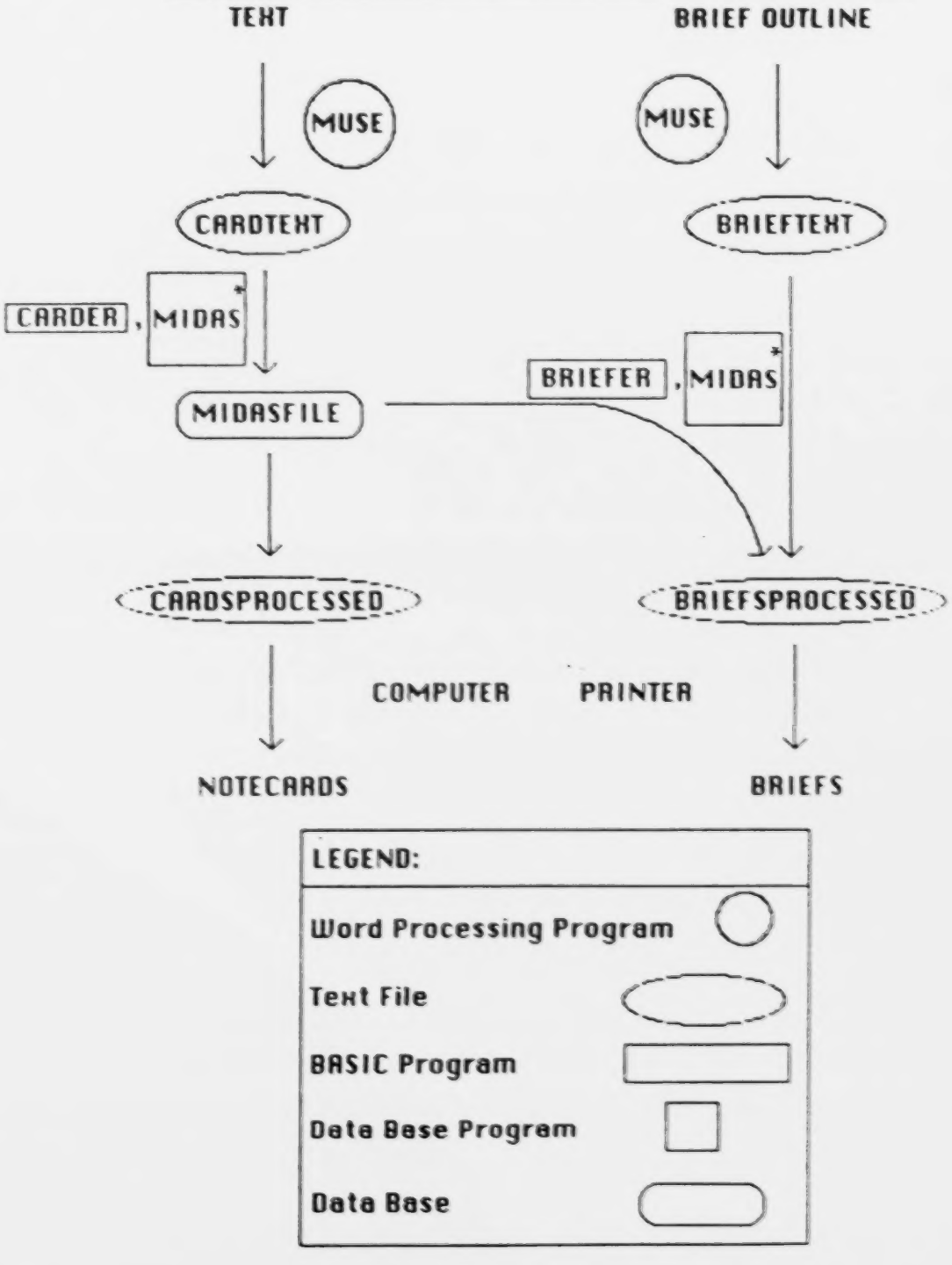

Indentation
US FOREIGN POLICY---SHOULD EXPOSE SOVIET INTERNAL POLICY
1. SOVIET INTERNAL POLICY IS IMPORTANT TO WEST
PIPES 84 (Richard/Survival is not Enough/ Pf History/ Harvard)
p12.
Insertion of an evidence card
Hence, the regime which Moscow maintains inside the Soviet Union and in other areas under its control should be for the West a matter not of mere curiosity but of the greatest and most immediate relevance.
RDG8513502
2. US HAS FAILED TO CHALLENGE
SEN DECONCINI 84 (Peace Thru Strength/ Am Sec Coun Found)
p74
In the past, US policies, whether containment or detente, were based upon the hope that the Soviet Union would eventually moderate its ideology as it experienced American good will. Instead, the Soviet Union has grown more assertive and more imperialistic as its military strength and aggressive momentum have increased.
RDG8500745
3. US CAN EXPLOIT WEAKNESS
SEN DECONCINI 84 (Peace Thru Strength/ Am Sec Coun Found)
p74
The greatest weakness of all in the Communist system should be exploited--its total denial of freedom to its citizens. Walls have to be built to contain people within the Soviet system.
RDG8513550
Form-feed Character
1
US FOREIGN POLICY---SHOULD ASSIST THIRD WORLD
1. THIRD WORLD DISTRUSTS US

Figure 2. The Computer System

This figure depicts the flow of data through our computer system, from the raw data (the text of a piece of evidence or the outline of a particular brief) to the finished end products (notecards and briefs). Arrows signify the direction of data flow, while the different symbols represent the different programs or files used to manipulate or store data, respectively.



*NOTE: MIDAS refers to the data base program MIDASPLUS

FIGURE 3. Text typed into MUSE, and saved in CARDTEXT.

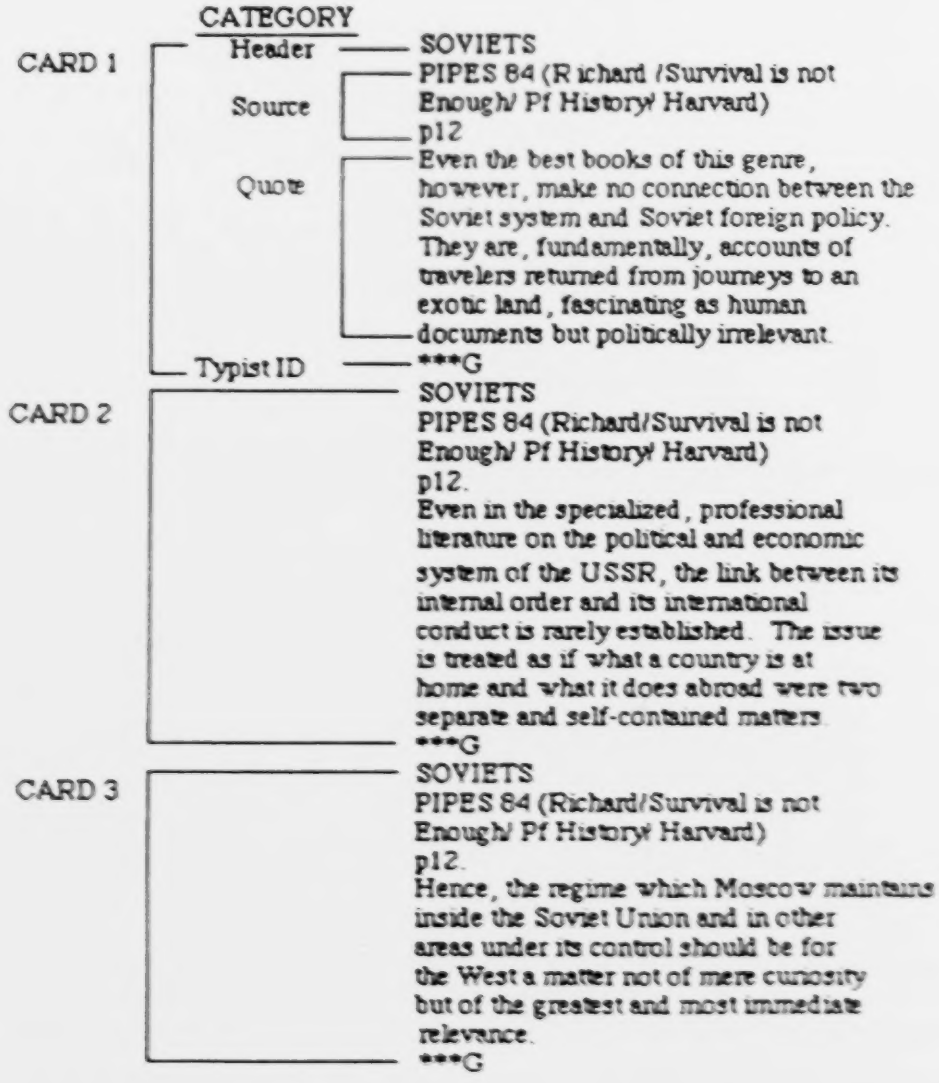
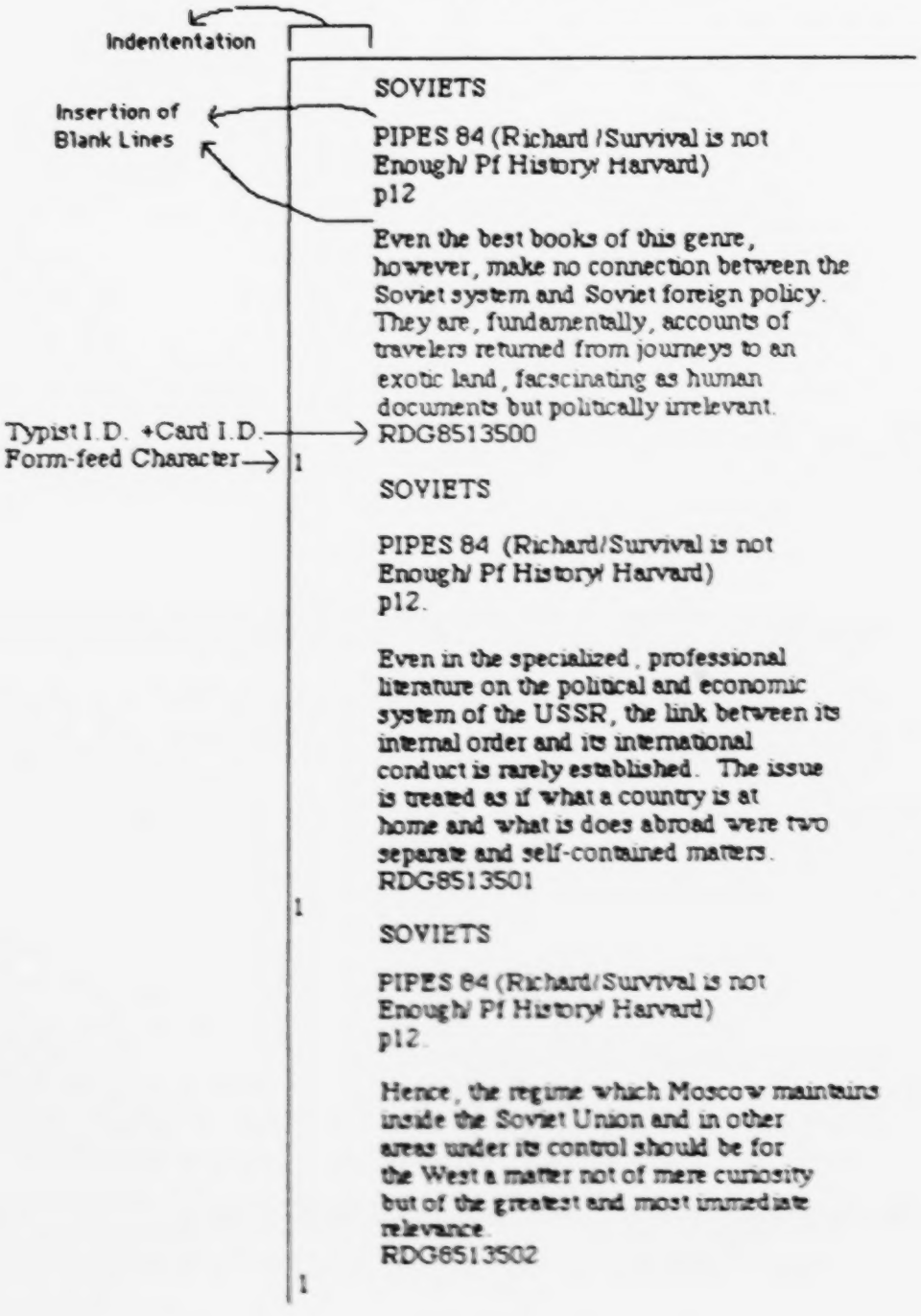

CATEGORY
CARD 1
Header
SOVIETS
Source
PIPES 84 (R ichard /Survival is not Enough/ Pf History/ Harvard)
p12
Quote
Even the best books of this genre, however, make no connection between the Soviet system and Soviet foreign policy. They are, fundamentally, accounts of travelers returned from journeys to an exotic land, fascinating as human documents but politically irrelevant.
Typist ID
***G
CARD 2
SOVIETS
PIPES 84 (Richard/Survival is not Enough/ Pf History/ Harvard)
p12.
Even in the specialized, professional literature on the political and economic system of the USSR, the link between its internal order and its international conduct is rarely established. The issue is treated as if what a country is at home and what it does abroad were two separate and self-contained matters.
***G
CARD 3
SOVIETS
PIPES 84 (Richard/Survival is not Enough/ Pf History/ Harvard)
p12.
Hence, the regime which Moscow maintains inside the Soviet Union and in other areas under its control should be for the West a matter not of mere curiosity but of the greatest and most immediate relevance.
***G

Figure 4. Final formatted text produced by CARDPRINTER, and stored in CARDPROCESSED.


Indententation
Insertion of Blank Lines
Typist I.D. +Card I.D.
Form-feed Character
SOVIETS
PIPES 84 (Richard /Survival is not Enough/ Pf History/ Harvard)
p12
Even the best books of this genre, however, make no connection between the Soviet system and Soviet foreign policy. They are, fundamentally, accounts of travelers returned from journeys to an exotic land, fascinating as human documents but politically irrelevant.
RDG8513500
1
SOVIETS
PIPES 84 (Richard/Survival is not Enough/ Pf History/ Harvard)
p12.
Even in the specialized, professional literature on the political and economic system of the USSR, the link between its internal order and its international conduct is rarely established. The issue is treated as if what a country is at home and what is does abroad were two separate and self-contained matters.
RDG8513501
1
SOVIETS
PIPES 84 (Richard/Survival is not Enough/ Pf History/ Harvard)
p12.
Hence, the regime which Moscow maintains inside the Soviet Union and in other areas under its control should be for the West a matter not of mere curiosity but of the greatest and most immediate relevance.
RDG8513502
1